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b. 60

UNITED STATES NAVAL OBSERVATORY
CIRCULAR NO. 60

U. S. Naval Observatory, Washington 25, D. C.

August 8, 1955

POSITIONS, AREAS, AND COUNTS OF SUNSPOTS

APRIL-MAY-JUNE, 1955

By Winifred Sawtell Cameron

These results are based upon measurements made at the Naval Observatory on plates secured either there or at the Mt. Wilson Observatory. The symbols used for the entries in the successive columns are as follows:

U.T., the epoch of observation in Universal Time.

No., the identifying number of the group assigned by Mt. Wilson.

Δl , the heliographic difference in longitude from the central meridian, measured positive to the west.

φ , the heliographic latitude, measured positive to the north.

ρ , the heliocentric angular distance from the line joining the centers of the Earth and Sun.

A , the true area of the umbra plus penumbra, expressed in millionths of the visible hemisphere.

s , the number of spots.

An asterisk means that no Mt. Wilson number was assigned. Plates secured at the Naval Observatory are indicated by N, and those at Mt. Wilson by M. The plate quality, which follows, is indicated by:

1, Poor; 2, Fair; 3, Good; 4, Very Good; 5, Excellent.

The following five quantities are listed successively at the end of each day, and give for that day:

1. The total number of groups, g .
2. The longitude of the central meridian, L_0 .
3. The latitude of the center of the disc, B_0 .
4. The total value of A .
5. The total value of s .

The mean daily area and the mean relative sunspot number, $r=10g+s$ are given at the end of the month.

These results are a continuation of those published in the *Monthly Weather Review* from February 1, 1927 to December 31, 1947.

MAY

U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		°	°	°					°	°	°		
N-2								11249	+22	+21	31	24	1
	(0) (329)	(-3)			0	0		11249	+24	+22	34	24	1
								(3) (196)	(-2)			290	11
10,619 N-2					0	0	20,585 N-3	11250	-55	+24	60	73	2
	(0) (315)	(-3)			0	0		11250	-53	+25	58	97	1
								11246	-18	+27	34	48	2
11,637 N-2	11244	+31	-33	42	24	2		11246	-15	+25	31	48	1
	(1) (301)	(-3)			24	2		11246	-14	+25	31	16	2
								11246	-13	+24	29	48	1
12,572 N-3					0	0		11246	-12	+25	29	12	1
	(0) (289)	(-3)			0	0		11246	-11	+23	26	16	2
								11246	-10	+25	28	24	3
13,594 M-3					0	0		11246	-8	+24	28	36	2
	(0) (275)	(-3)			0	0		11246	-8	+25	29	121	3
								11246	-7	+24	27	12	1
14,850 N-2					0	0		11249	+33	+22	40	16	1
	(0) (259)	(-3)			0	0		11249	+36	+22	43	24	2
								(3) (183)	(-2)			591	24
15,588 N-2					0	0	21,575 N-3	11251	-65	-27	67	24	1
	(0) (249)	(-3)			0	0		11250	-48	+26	54	16	1
								11250	-47	+26	53	16	1
16,578 N-2	11246	-70	+25	74	36	2		11250	-42	+23	47	48	1
	11246	-65	+24	68	36	1		11250	-39	+24	45	133	1
	11246	-64	+24	66	24	1		11246	-5	+27	30	36	2
	11248	-56	+22	60	6	1		11246	-3	+26	28	194	2
	(2) (236)	(-2)			102	5		11246	-1	+25	26	73	2
17,565 N-2	11246	-58	+26	63	109	1		11246	0	+25	26	73	4
	11246	-52	+24	56	109	2		11246	+3	+25	26	48	5
	(1) (223)	(-2)			218	3		11246	+4	+25	27	24	1
								11246	+5	+25	27	73	4
18,562 N-2	11250	-78	+23	78	145	1		11246	+5	+24	26	16	1
	11246	-45	+26	52	97	1		11246	+6	+25	27	170	7
	11246	-37	+24	44	24	3		(3) (170)	(-2)			944	33
	11246	-36	+24	43	85	2	22,567 M-4	11251	-52	-26	55	12	1
	11249	+6	+22	24	12	1		11250	-36	+27	45	16	3
	11249	+10	+22	25	24	2		11250	-36	+26	44	12	2
	(3) (209)	(-2)			387	10		11250	-35	+28	44	48	3
19,601 N-2	11250	-66	+25	70	24	1		11250	-33	+27	43	6	1
	11250	-64	+25	68	48	1		11550	-27	+24	36	36	3
	11246	-31	+27	42	73	1		11250	-25	+25	36	109	3
	11246	-24	+25	35	12	1		11250	-24	+24	35	12	1
	11246	-23	+24	34	12	2		11246	+7	+26	28	16	5
	11246	-21	+25	34	73	3		11246	+8	+26	30	16	2
								11246	+10	+26	30	97	5
								11246	+12	+25	30	48	4
								11246	+12	+24	29	73	6
								11246	+13	+25	31	12	3
								11246	+13	+24	30	24	4
								11246	+14	+23	28	16	4
								11246	+15	+23	28	12	2
								11246	+16	+24	30	12	1
								11246	+17	+24	31	48	5
								11246	+20	+24	33	242	8
								(3) (156)	(-2)			867	66

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U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
23,554 N-3	11250	-23	+27	36	36	2	27,547 N-3	11250	+18	+25	32	16	1
	11250	-22	+26	35	24	2		11250	+23	+26	34	16	1
	11250	-21	+27	35	24	3		11250	+24	+25	35	97	1
	11250	-20	+26	34	12	1		11246	+66	+26	70	36	2
	11250	-19	+26	34	6	1		11246	+75	+25	77	73	1
	11250	-15	+24	30	24	2		11246	+77	+26	78	242	1
	11250	-13	+25	30	121	1		(3)	(104)	(-1)		770	18
	11246	+22	+27	36	48	3		11253	-27	+30	41	32	1
	11246	+23	+27	36	97	3		11253	-26	+30	40	48	2
	11246	+24	+26	36	73	2		11253	-25	+30	39	48	1
	11246	+25	+25	36	61	1		11253	-25	+32	40	97	1
	11246	+25	+26	36	24	3		11253	-24	+31	38	36	2
	11246	+26	+25	37	12	1		11253	-18	+30	35	121	1
	11246	+28	+24	37	12	1		11250	+29	+26	39	36	1
	11246	+29	+25	39	24	2		11250	+30	+25	38	24	2
	11246	+33	+25	41	16	1		11250	+37	+25	44	73	1
	11246	+35	+25	43	315	3		11246	+80	+26	80	48	1
(2)		(143)	(-2)		929	32	(3)		(91)	(-1)		563	13
24,553 N-3	11250	-9	+26	30	12	2	28,768 N-3	11254	-26	+27	38	16	1
	11250	-8	+26	29	48	4		11254	-23	+26	35	48	3
	11250	-3	+24	26	16	1		11253	-10	+32	34	121	3
	11250	-2	+23	24	12	1		11253	-9	+31	33	24	2
	11250	-2	+24	26	12	1		11253	-6	+31	32	48	1
	11250	-2	+26	27	12	1		11253	-5	+31	32	16	1
	11250	0	+25	26	97	1		11253	-5	+32	33	242	3
	11246	+34	+27	44	12	2		11253	-1	+31	32	145	2
	11246	+34	+28	44	36	3		11250	+45	+25	51	48	2
	11246	+36	+27	45	36	3		11250	+48	+23	53	16	2
	11246	+36	+26	45	48	4		11250	+54	+24	58	24	1
	11246	+38	+26	46	24	3		(3)	(75)	(-1)		748	21
	11246	+39	+25	46	24	2	29,636 N-2	11254	-13	+26	30	16	2
	11246	+48	+25	54	315	1		11254	-11	+26	29	24	2
(2)		(130)	(-2)		704	29		11253	-1	+32	33	73	3
25,513 N-4	11253	-46	+29	54	24	2		11253	0	+31	32	24	2
	11250	+2	+29	31	24	2		11253	+4	+31	33	36	2
	11250	+3	+26	27	12	1		11253	+5	+30	32	61	3
	11250	+3	+28	29	12	1		11253	+6	+31	32	145	2
	11250	+3	+27	28	32	5		11253	+8	+31	33	73	2
	11250	+6	+25	26	12	1		11253	+9	+30	33	24	2
	11250	+7	+24	26	12	1		11250	+56	+26	61	24	2
	11250	+12	+26	30	121	1		(3)	(63)	(-1)		500	22
	11246	+46	+28	53	24	2	30,583 N-4	11254	-4	+25	26	12	2
	11246	+48	+28	54	36	1		11254	+1	+25	25	6	1
	11246	+49	+26	55	24	1		11253	+11	+31	34	73	1
	11246	+49	+29	56	16	3		11253	+12	+28	32	16	2
	11246	+52	+26	56	12	1		11253	+16	+30	34	61	3
	11246	+61	+26	65	242	1		11253	+17	+31	36	121	1
	(3)	(118)	(-1)		603	23		11253	+19	+31	36	73	2
26,513 N-3	11253	-37	+30	46	73	2		11253	+22	+30	37	16	1
	11253	-36	+28	45	12	1		11250	+75	+27	77	24	1
	11253	-33	+29	44	97	3	(3)		(50)	(-1)		402	14
	11250	+15	+27	32	48	1							
	11250	+16	+28	34	24	1							
	11250	+16	+27	33	36	3							

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U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s	
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$			
31,664	11253	+25	+32	40	12	1	7,578	11257	-16	+34	37	12	2	
N-3	11253	+25	+31	39	12	1	M-4	11257	-16	+33	36	6	1	
	11253	+31	+30	43	16	2		11257	-15	+33	36	12	2	
	11253	+32	+31	44	73	1		11257	-14	+35	37	16	3	
	11253	+33	+32	45	48	2		11257	-13	+33	35	6	2	
								11256	-10	+33	34	6	2	
(1)	(36)	(-1)			161	7		11256	-9	+31	32	16	1	
	Mean for 30 days							11256	-7	+31	32	6		
	$A=356, r=32.0$							11256	-7	+32	33	48	6	
								11256	-6	+33	34	12	3	
1,644	11253	+45	+31	54	6	1		(2)	(305)	(0)		140	23	
N-3	11253	+45	+32	54	48	1		8,572	11257	-6	+35	36	12	2
	11253	+47	+33	56	16	1	M-4	11257	-5	+34	35	6	4	
								11257	-3	+34	34	6	1	
(1)	(23)	(-1)			70	3		11257	-3	+33	33	16	4	
2,514	11254	+35	+26	43	24	2		11257	-2	+33	33	6	3	
N-3	11254	+37	+27	44	24	1		11257	-2	+32	32	6	1	
	11253	+53	+32	59	16	1		11256	+2	+32	32	12	2	
	11253	+55	+33	61	61	1		11256	+3	+33	33	12	2	
	11253	+57	+34	62	24	2		11256	+6	+31	32	61	3	
								(2)	(291)	(0)		137	22	
3,548	11256	-65	+30	68	6	1		9,587	11258	-78	+46	81	24	1
N-3	11253	+70	+33	74	48	1	M-3	11257	+6	+34	35	6	2	
								11257	+10	+32	34	12	3	
(2)	(358)	(0)			54	2		11257	+11	+32	34	6	1	
4,570	11257	-65	+30	68	12	1		11257	+12	+34	36	6	1	
N-3	11257	-60	+30	64	48	2		11257	+13	+34	36	12	8	
	11256	-53	+29	58	48	2		11257	+13	+33	35	16	5	
	11256	-51	+29	56	12	1		11257	+14	+33	35	16	8	
	11256	-49	+28	54	24	2		11256	+16	+31	34	12	2	
	11253	+85	+34	86	48	1		11256	+17	+32	35	16	5	
								11256	+17	+33	36	16	6	
(3)	(344)	(0)			192	9		11256	+19	+30	35	48	4	
5,630	11257	-50	+31	56	6	1		(3)	(278)	(0)		190	46	
N-3	11257	-45	+31	53	61	1		10,512	11259	-82	-25	82	24	1
	11256	-40	+32	49	73	5	N-4	11259	-80	-26	80	388	1	
	11256	-37	+29	45	73	1		11257	+20	+34	39	32	2	
	11256	-33	+28	43	24	1		11257	+21	+33	38	12	1	
								11257	+23	+34	40	12	1	
(2)	(330)	(0)			237	9		11257	+24	+34	41	24	2	
6,533	11257	-40	+33	50	12	2		11256	+29	+32	43	16	1	
N-3	11257	-34	+32	45	48	1		11256	+31	+30	42	48	2	
	11257	-33	+31	44	36	3		(3)	(266)	(0)		556	11	
	11256	-30	+33	44	61	2		11,592	11261	-80	+24	80	24	3
	11256	-29	+32	43	32	1	M-2	11261	-79	+22	79	97	3	
	11256	-27	+30	40	36	2		11261	-78	+23	78	48	3	
	11256	-26	+29	38	97	2		11261	-74	+25	74	24	3	
	11256	-24	+30	37	12	2		11259	-79	-22	79	24	4	
	11256	-21	+28	34	16	1		11259	-77	-19	78	12	1	
								11259	-75	-19	76	6	1	
(2)	(318)	(0)			350	16		11259	-73	-19	74	6	1	
								11259	-71	-18	73	36	1	

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U.T.	No.	Δl	φ	ρ	A	s	U.T.	No.	Δl	φ	ρ	A	s
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$		
	11259	-68	-21	70	24	2		11259	-18	-24	31	12	2
	11259	-67	-23	70	16	1		11259	-17	-21	27	24	1
	11259	-65	-25	68	436	2		11259	-15	-24	27	32	4
	11260	-15	-26	30	32	2		11259	-15	-26	31	12	2
	11260	-12	-24	27	24	2		11259	-13	-26	30	436	2
	11257	+34	+34	46	16	3		(1) (200) (+1)				928	36
	11256	+36	+32	46	12	3							
	11256	+40	+33	49	12	2							
	(5) (251) (+1)				849	37							
12,633	11261	-66	+21	67	48	2	16,517	11262	-76	+17	76	145	1
N-2	11261	-64	+23	66	48	1	N-3	11259	-16	-23	29	48	2
	11261	-61	+25	64	32	3		11259	-15	-24	29	48	3
	11259	-65	-24	69	145	1		11259	-13	-24	28	24	1
	11259	-57	-21	60	73	2		11259	-12	-23	27	194	8
	11259	-53	-23	56	48	1		11259	-11	-22	25	97	1
	11259	-51	-26	55	388	2		11259	-8	-21	24	12	1
	11260	+1	-26	26	16	1		11259	-8	-23	25	32	3
	(3) (238) (+1)				798	13		11259	-7	-23	25	12	1
13,534	11259	-55	-23	58	24	3		11259	-6	-22	24	194	3
N-3	11259	-53	-25	56	194	2		11259	-6	-20	23	73	2
	11259	-46	-22	50	48	2		11259	-5	-21	23	32	1
	11259	-44	-22	49	48	1		11259	-3	-24	25	73	4
	11259	-40	-24	46	73	3		11259	-1	-26	26	436	3
	11259	-38	-26	45	461	1		(2) (186) (+1)				1420	34
	11261	-53	+22	56	12	1	17,537	11262	-61	+17	62	73	2
	11261	-52	+21	55	6	1	N-4	11259	-4	-23	25	12	2
	11261	-51	+22	54	12	1		11259	-3	-22	24	48	4
	11261	-48	+23	52	16	1		11259	-2	-23	24	24	2
	11257	+51	+34	57	16	1		11259	-1	-22	23	48	3
	(3) (226) (+1)				910	17		11259	+1	-23	24	145	5
14,574	11259	-39	-24	46	12	1		11259	+3	-22	24	121	3
N-3	11259	-38	-27	46	73	2		11259	+4	-23	25	16	1
	11259	-37	-27	46	16	2		11259	+6	-22	24	73	2
	11259	-36	-26	44	109	2		11259	+7	-21	24	48	3
	11259	-35	-26	43	36	3		11259	+8	-23	25	16	1
	11259	-35	-25	43	12	1		11259	+9	-21	24	97	2
	11259	-32	-25	39	16	1		11259	+9	-22	25	194	3
	11259	-31	-24	38	48	4		11259	+10	-26	28	36	3
	11259	-28	-24	37	32	1		11259	+11	-23	26	24	2
	11259	-26	-26	36	16	2		11259	+12	-23	27	24	1
	11259	-26	-27	37	12	1		11259	+13	-25	29	436	3
	11259	-25	-25	35	48	2		11264	+64	-27	68	12	1
	11259	-24	-27	36	436	1		11264	+65	-25	68	16	1
	(1) (212) (+1)				866	23		(3) (173) (+1)				1463	44
15,519	11259	-27	-24	36	73	5	18,573	11262	-47	+18	50	61	2
N-4	11259	-26	-22	34	12	2	N-3	11259	+11	-22	25	48	1
	11259	-25	-22	33	12	1		11259	+12	-22	26	48	1
	11259	-24	-23	33	121	5		11259	+13	-22	26	24	1
	11259	-24	-22	33	61	3		11259	+14	-24	28	194	5
	11259	-21	-23	32	16	2		11259	+16	-23	29	36	2
	11259	-19	-23	31	85	6		11259	+20	-23	32	12	1
	11259	-18	-21	27	32	1		11259	+22	-23	32	24	1
								11259	+23	-22	33	242	6
								11259	+23	-24	34	24	1
								11259	+24	-23	34	36	2
								11259	+25	-25	36	436	5
								11259	+26	-23	35	73	3
								(2) (159) (+1)				1258	31

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U. T.	No.	Δl	φ	ρ	A	s	U. T.	No.	Δl	φ	ρ	A	s	
		$^{\circ}$	$^{\circ}$	$^{\circ}$					$^{\circ}$	$^{\circ}$	$^{\circ}$			
19.589	11262	-33	+21	39	12	1	22.515	11262	+6	+20	19	12	1	
M-3	11262	-33	+22	40	16	1	N-4	11259	+63	-26	66	170	1	
	11259	+26	-22	34	24	4		11259	+69	-21	72	16	1	
	11259	+26	-24	36	12	3		11259	+70	-23	73	145	3	
	11259	+26	-26	38	16	3		11259	+71	-19	73	24	2	
	11259	+27	-21	35	12	3		11259	+73	-20	75	36	2	
	11259	+27	-23	36	145	10		11259	+74	-18	76	121	1	
	11259	+27	-27	39	12	1		11259	+75	-19	76	145	2	
	11259	+28	-25	38	12	1		11259	+75	-24	77	97	1	
	11259	+28	-26	38	16	2		11259	+75	-23	76	145	1	
	11259	+29	-23	37	24	3		(2) (106) (+2)			911	15		
	11259	+31	-22	37	12	3								
	11259	+31	-23	38	24	1		23.510	11259	+76	-26	78	145	1
	11259	+32	-24	39	16	1		N-4						
	11259	+34	-23	41	24	6		(1) (94) (+2)			145	1		
	11259	+36	-22	42	218	8								
	11259	+37	-21	43	12	3		24.528			0	0		
	11259	+38	-23	44	24	3		N-4						
	11259	+39	-25	46	315	4		(0) (80) (+2)			0	0		
	11259	+40	-23	46	24	3								
	11259	+41	-22	46	16	4		25.552			0	0		
	11259	+42	-25	47	12	1		M-3						
	(2) (146) (+2)				998	69		(0) (67) (+2)			0	0		
20.538	11262	-21	+19	26	24	1								
N-2	11259	+38	-26	46	85	4		26.641			0	0		
	11259	+39	-25	46	48	2		N-3						
	11259	+40	-20	44	121	3		(0) (52) (+2)			0	0		
	11259	+40	-22	45	61	4								
	11259	+42	-23	47	24	1		27.525			0	0		
	11259	+43	-25	49	24	1		N-3						
	11259	+43	-24	48	109	3		(0) (40) (+2)			0	0		
	11259	+43	-22	48	145	5								
	11259	+45	-24	51	48	2		28.513	11266	-82	-35	86	436	1
	11259	+45	-23	50	48	1		N-3	11266	-80	-36	85	291	1
	11259	+47	-21	52	48	3		(1) (28) (+3)			727	2		
	11259	+49	-19	53	121	2								
	11259	+50	-20	54	97	2		29.519	11266	-78	-36	81	97	1
	11259	+52	-24	56	291	3		N-3	11266	-70	-36	76	48	1
	11259	+52	-21	56	48	1		11266	-67	-36	73	339	3	
	11259	+54	-21	57	73	2		(1) (14) (+3)			484	5		
	(2) (133) (+2)				1415	40								
21.549	11262	-6	+20	19	24	2		30.511	11268	-82	+15	82	48	2
N-2	11262	-6	+23	22	16	1		N-3	11267	-79	+30	79	194	1
	11259	+51	-26	56	194	3		11266	-57	-34	65	24	1	
	11259	+53	-23	57	36	1		11266	-55	-33	63	24	1	
	11259	+55	-23	59	36	1		11266	-55	-35	64	291	1	
	11259	+56	-22	60	97	4		11266	-54	-36	64	24	1	
	11259	+57	-23	62	48	4		(3) (1) (+3)			605	7		
	11259	+59	-24	64	218	1								
	11259	+62	-21	65	73	2								
	11259	+63	-20	65	121	1								
	11259	+65	-21	68	121	1								
	11259	+65	-25	69	97	1								
	11259	+65	-24	69	97	2								
	(2) (120) (+2)				1178	24								

Mean for 30 days
 $A=568, r=36.9$

Mean for 30 days
 $A=568, r=36.9$